

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Appellant:	Lone Andersen et al.	
Serial No.: 10/528,926	Conf. No.: 6586	Filing Date: December 16, 2005
Title of Application:	Chewing Gum Comprising At Least Two Different Biodegradable Polymers	
Group Art Unit: 1794	Examiner: Dees, Nikki H.	

Mail Stop Appeal Brief - Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**Reply Brief Under 37 CFR §41.41**

Dear Sir:

Having received the Examiner's Answer, Appellant submits this Reply Brief for the above-captioned application pursuant to 37 C.F.R. §41.41 as follows.

Appellant has fully set forth its arguments for patentability in its previously filed Appeal Brief. Herein, Appellant will briefly sum up the main arguments and address the Examiner's Responses to Appellant's arguments, as set forth in the Examiner's Answer.

Bunczek

With reference to the rejections over Bunczek, present Claim 1 comprises five different limitations, each one narrowing the claim scope:

- Chewing gum comprising at least two different biodegradable polymers,
- said polymers have a different glass transition temperature T<sub>g</sub>,
- at least one polymer has a T<sub>g</sub> of at least +1°C,
- at least one polymer has a T<sub>g</sub> of less than 0 °C and
- the difference in molecular weight between the polymers is at least 1000 g/mol

Mn.

Of these five limitations, the Examiner acknowledges that Bunczek is completely silent regarding the last four and that the "at least two" requirement of Claim 1 is covered by the "at least one" recitation in the claims and summary (which paraphrase the claims) of Bunczek, even though the remaining part of Bunczek has no indication at all regarding more than one biodegradable polymer and that it is thus very likely that the "at least one" is the work of a patent attorney more than an inventor. Reading the description of Bunczek, it is made very clear that only one polymer was considered for

being added to conventional chewing gum, and that this one polymer was not even suitable for the purpose.

Nevertheless, in the Examiner's Response, the Examiner repeats that (emphasis added by Appellant): "Bunczek **clearly provides** direction to utilize more than one (e.g. two) biodegradable polymers to replace traditional chewing gum elastomers and elastomer plasticizers."

Furthermore, in the Examiner's Response, regarding the complete absence of mentioning of Tgs and molecular weights in Bunczek, the Examiner maintains the view from the latest Office Action when stating:

Regarding the lack of direction for choice of Tg and molecular weight of the polymers of Bunczek, as the polymers of Bunczek are to be used in the same manner as the polymers of the instant invention, that is, to replace traditional elastomers and elastomer plasticizers in chewing gum bases, it would be expected that the polymers of Bunczek would have Tg and molecular weights falling within the ranges as claimed.

Further, the Examiner refers to *In re Best* to argue that the Appellant must provide convincing arguments or evidence that the polymers of Bunczek do not possess Tg and Mn within the ranges claimed.

As stated in the Appeal Brief, Appellant submits that it is not completely understood what is meant by the Examiner's requirement for convincing arguments or evidence. There is no disclosure of two polymers combined in Bunczek. And for the individual polymers given in Bunczek, no indication is given of Mn and Tg (i.e., the polymers taught by Bunczek et al. could have any value of Tg and Mn). As such it is in no way possible for the Appellant to argue that the polymers of Bunczek would have some specific values.

Furthermore, the Examiner has given absolutely no rationale for stating that “as the polymers of Bunczek are to be used in the same manner as the polymers of the instant invention..., it would be expected that the polymers of Bunczek would have Tg and molecular weights falling within the ranges as claimed.”

The Appellant is puzzled where this expectation would originate from. As earlier mentioned, absolutely no combination of biodegradable polymers is disclosed in Bunczek and furthermore absolutely no values are given for Tg and Mn, so indeed the skilled person would be left on his/her own for suitable values of Tg and Mn even if he/she would consider combining two biodegradable polymers in a chewing gum. In this context it is set forth that both Tg and Mn for polymers may vary quite a bit, with a

quick search on values for T<sub>g</sub> for polymers results in values both below -100°C and above 200°C.

Essentially, it appears that the Examiner is attempting to base a rejection in part on the doctrine of inherency, and then shifting the burden to Appellant to provide convincing evidence of *non-inherency*. Of course, this is completely improper. The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.' " *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted).

In the present case, the Examiner has not shown (and indeed cannot show), that **even if** it would have been obvious in view of Bunczek to combine two biodegradable polymers in a chewing gum, both of the polymers would necessarily have different glass transition temperatures T<sub>g</sub>s, one polymer would necessarily have a T<sub>g</sub> of at least +1°C,

one polymer would necessarily have a Tg of less than 0 °C and the difference in molecular weight between the two polymers would necessarily be at least 1000 g/mol Mn.

Again the Appellant is puzzled how the Examiner can consider it obvious for the skilled person starting from a one-polymer chewing gum to reach the present invention, in which it has been discovered by Appellants that a combination of a high-Tg and a low-Tg polymer in a chewing gum results in certain advantageous properties, as discussed in detail previously.

Until the discovery by Appellant of the benefits of combining two biodegradable polymers in a chewing gum, both of the polymers would have different glass transition temperatures Tgs, one polymer having a Tg of at least +1°C, one polymer having a Tg of less than 0 °C and the difference in molecular weight between the two polymers being at least 1000 g/mol Mn, there would have been no motivation or reason, even if one were to combine two biodegradable polymers in a chewing gum, to select polymers having the very specific respective Tg and Mn properties claimed. For example, one skilled in the art could have chosen:

- two polymers with the same Tg and with a difference in molecular weights thereof being less than 1000 g/mol Mn;

- two polymers with the same Tg and with a difference in molecular weights thereof being at least 1000 g/mol Mn;
- two polymers with different Tgs, both at least +1°C, and with a difference in molecular weights thereof being less than 1000 g/mol Mn;
- two polymers with different Tgs, both at least +1°C, and with a difference in molecular weights thereof being at least 1000 g/mol Mn;
- two polymers with different Tgs, both less than 0 °C, and with a difference in molecular weights thereof being less than 1000 g/mol Mn;
- two polymers with different Tgs, both less than 0 °C, and with a difference in molecular weights thereof being at least 1000 g/mol Mn;
- two polymers with different Tgs, one less than 0 °C and one between 0 °C and +1 °C, and with a difference in molecular weights thereof being less than 1000 g/mol Mn;
- two polymers with different Tgs, one less than 0 °C and one between 0 °C and +1 °C, and with a difference in molecular weights thereof being at least 1000 g/mol Mn;
- two polymers with different Tgs, one at least +1 °C and one between 0 °C and +1 °C, and with a difference in molecular weights thereof being less than 1000 g/mol Mn;

- two polymers with different Tgs, one at least +1 °C and one between 0 °C and +1 °C, and with a difference in molecular weights thereof being at least 1000 g/mol Mn;
- two polymers with different Tgs, one at least +1 °C and one less than 0 °C, and with a difference in molecular weights thereof being less than 1000 g/mol Mn; and
- two polymers with different Tgs, one at least +1 °C and one less than 0 °C, and with a difference in molecular weights thereof being at least 1000 g/mol Mn.

Appellant respectfully submits that there is absolutely no disclosure, teaching or suggestion contained in the cited prior art to choose the specific Tgs and Mns recited in Claim 1. It was not until Appellants discovered that a combination of a high-Tg and a low-Tg polymer in a chewing gum results in certain advantageous properties that one would have realized the benefits, and consequently been provided with any motivation to select, polymers having the specifically claimed properties.

Furthermore, the reference to *In re Best* is considered peculiar. This decision speaks about when “the claimed and prior art products are identical or substantially identical”, i.e. “prima facie obviousness”. In the present case, the prior art is a one-



polymer piece of chewing gum with unknown values of Tg and Mn, whereas Claim 1 is directed to an at least two-polymer piece of chewing gum with specified values of Tg and Mn.

Finally the Examiner states that “It is also noted that the ranges of Tg and molecular weights of claim 1 are very broad and encompass a vast number of polymer combinations. To argue that there is no direction from Bunczek to arrive at polymers as required by the instant claims when the instant claims provide for such a large range of polymers is not convincing.”

The Appellant respectfully submits that broadness of a claim is irrelevant when arguing obviousness of a claim. First of all, how should it be determined where the limit is when a claim is no longer too broad? Second of all, when prior art gives absolutely no teaching, suggestion or motivation to lead to the relevant invention, it seems an Appellant should deserve a patent on the relevant invention.

Furthermore, even though not relevant to the present application, if broadness was an issue for nonobviousness, a vast number of already granted patents should never have been granted. Looking into, e.g., claim 1 of Bunczek as granted, claim 1 covers any gum base comprising at least one polyester manufactured from a large

number of combinations between alcohol and acid and end-capped with any of a very large number of ingredients. No restrictions are given to more ingredients than that one polyester and no restrictions are given to values of Tg, Mn, etc.

Cook

The arguments from the Examiner are essentially the same for Cook as they are for Bunczek. Consequently, the arguments above apply in response to the rejections over Cook.

For the foregoing reasons, as well as those set forth in Appellant's previously filed Appeal Brief, Appellant respectfully submits that the claimed invention embodied in each of Claims 1-2, 4-6, 8, 10-13, and 15-66 is patentable over the cited prior art. As such, Appellant respectfully requests that the rejections of each of these Claims be reversed.

Respectfully submitted,

December 14, 2010

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